

P-W

NATIONAL POTASH CO. *Navajo*
S16-T17N-R26E, Apache County *1-20*

P-W

NATIONAL POTASH CO. #10
16-T17N-R26E, Apache County

1-29

County Apache
Area 18 mi. S. of Navajo

Lease No. _____

Well Name National Potash Co. well # Navajo 1 State

Location _____ Sec 16 Twp 17N Range 26E Footage 330 FSL; 330 FEL
Elev 5780 Gr 5785 KB Date 5-7-64 Spud _____ Completed _____ Total _____
Abandon 5-12-64 Depth 1507

Contractor Scott Bros. Drilling Co. Albuquerque

Casing Size _____ Depth _____ Cement _____

Drilled by Rotary ☒
Cable Tool _____

7" ~~8 3/4~~" 63K.B. None
4 1/2" 133K.B. None

Production Horizon _____
Initial Production D & A

REMARKS

Drilled for Potash only

Top Coconino 960' } @ Sample description
" Salt 1336 }

Elec _____
Logs _____
Applic. _____ Plugging _____ Completion _____
to Plug _____ Record ☒ Report ☒ 960

Sample Log ☒
Sample Descript. _____
Sample Set T-2031, P-1347
Core Analysis _____
DSTs _____

Water well accepted by _____

Bond Co.
& No. _____

Bond Am't \$ _____ Cancelled _____ Date _____
Organization Report _____

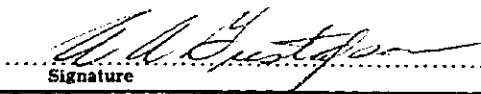
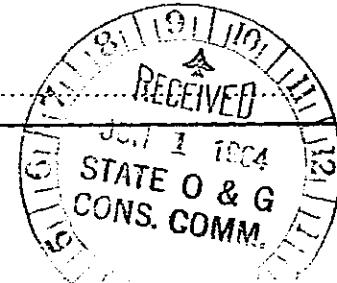
Filing Receipt _____ Dated _____ Well Book _____ Plat Book _____

API No. 02-001-05347 Loc. Plat _____ Dedication _____

Permit Number None

Date Issued _____

#1-29

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG																	
DESIGNATE TYPE OF COMPLETION:																	
New Well	<input checked="" type="checkbox"/>	Work-Over	<input type="checkbox"/>	Deepen	<input type="checkbox"/>	Plug Back	<input type="checkbox"/>	Same Reservoir	<input type="checkbox"/>	Different Reservoir	<input type="checkbox"/>	Oil	<input type="checkbox"/>	Gas	<input type="checkbox"/>	Dry	<input type="checkbox"/>
DESCRIPTION OF WELL AND LEASE																	
Operator National Potash Co.					Address Carlsbad, New Mexico												
Lease Name					Well Number 1		Field & Reservoir Black Mesa										
Location 18 mi. S. of Navajo, Arizona					Sec.-TWP-Range or Block & Survey 16-17N-26E												
County Apache	Permit number		Date Issued		Previous permit number		Date Issued										
Date spudded May 7, 1964	Date total depth reached May 11, 1964		Date completed, ready to produce		Elevation (DF, RKB, RT or Gr.) feet		Elevation of casing hd. flange feet										
Total depth 1507	P.B.T.D.		Single, dual or triple completion?			If this is a dual or triple completion, furnish separate report for each completion.											
Producing interval (s) for this completion Drilled for potash only			Rotary tools used (interval) 0'-1507'			Cable tools used (interval) None											
Was this well directionally drilled?			Was directional survey made?			Was copy of directional survey filed?		Date filed									
No																	
Type of electrical or other logs run (check logs filed with the commission)							Date filed										
None																	
CASING RECORD																	
Casing (report all strings set in well—conductor, surface, intermediate, producing, etc.)																	
Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amt. pulled											
Potash Expl.	8 3/4"	7"		63' K.B.	None	63											
Potash Expl.	7"	4 1/2"		1331' K.B.	None	1331											
TUBING RECORD					LINER RECORD												
Size in.	Depth set ft.	Packer set at ft.	Size in.	Top ft.	Bottom ft.	Sacks cement	Screen (ft.)										
PERFORATION RECORD					ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD												
Number per ft.	Size & type	Depth Interval			Am't. & kind of material used		Depth Interval										
INITIAL PRODUCTION																	
Date of first production		Producing method (Indicate if flowing, gas lift or pumping—if pumping, show size & type of pump:)															
Date of test	Hrs. tested	Choke size	Oil prod. during test bbls.	Gas prod. during test MCF	Water prod. during test bbls.	Oil gravity ° API (Corr)											
Tubing pressure	Casing pressure	Cal'ed rate of Production per 24 hrs.	Oil bbls.	Gas MCF	Water bbls.	Gas-oil ratio											
Disposition of gas (state whether vented, used for fuel or sold):																	
<p>CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the.....representative.....of the</p> <p>National Potash Co......(company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.</p>																	
Date May 14, 1964			Signature 														
			<p>STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION</p> <p>Well Completion or Recompletion Report and Well Log</p> <p>Form No. P-7 File two copies</p>														

DETAIL OF FORMATIONS PENETRA

Formation	Top	Bottom	Description*
Coconino Top of salt	960 1336	1240	

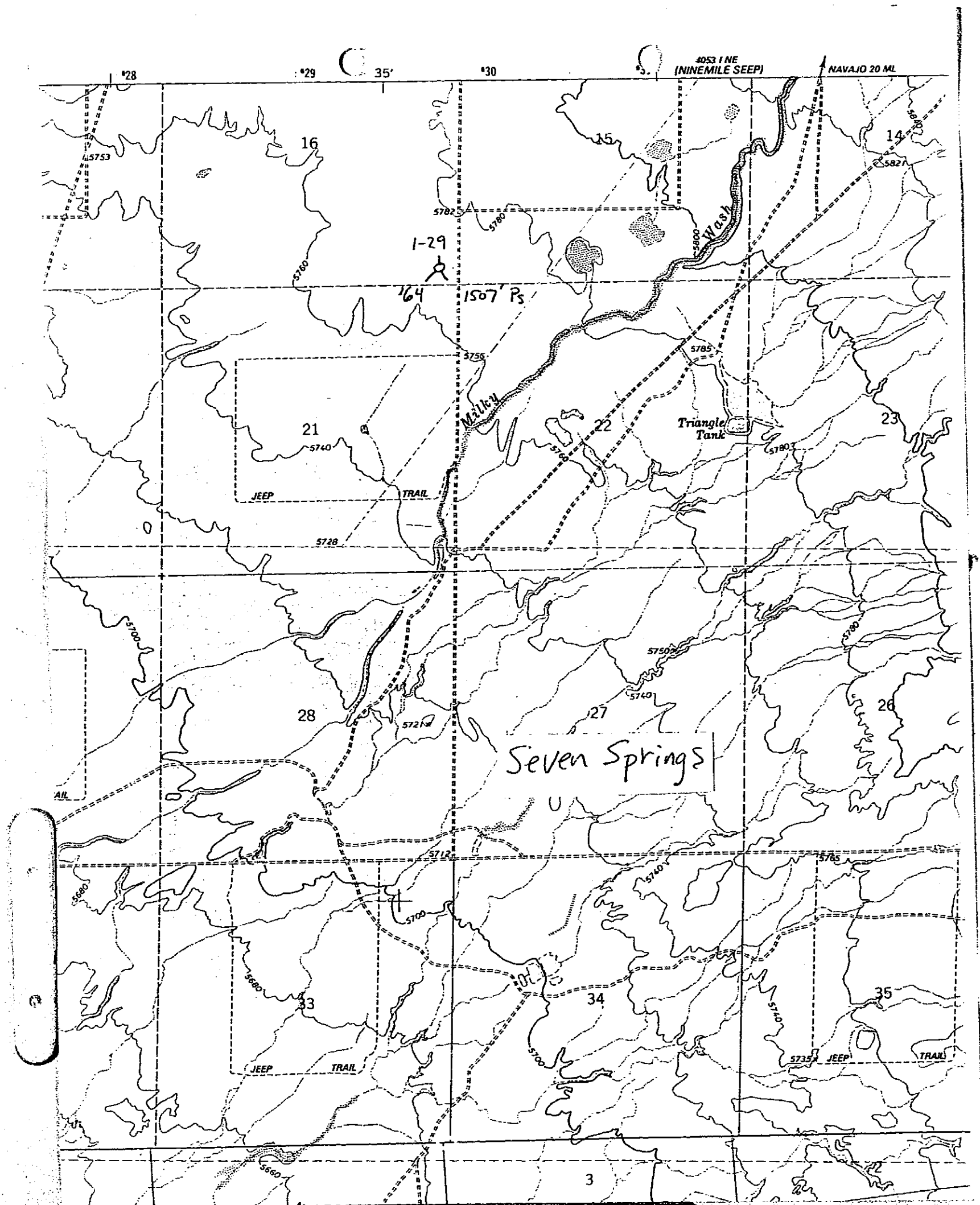
* Show all important zones of porosity, detail of all cores, and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.

INSTRUCTIONS:

Attach drillers log or other acceptable log of well.

This Well Completion or Recompletion report and well log shall be filed with the State of Arizona Oil & Gas Conservation Commission not later than thirty days after project completion.

Form No. P-7



WELL

National Potash Co. #1 Navajo
(drilled with rotary)
O+G C-1/-29

National Potash #2 Navajo
(drilled with rotary)
O+G C-1/-31

Location

330 FSL, 330 FEL
Sec 16-17N-26E

330 FNL, 330 FWL
Sec 98-26E-17W
26-17N-26E

Elevation

5780 Gr
5785 KB

5830 Gr
5835 KB

Tops

Coconino 960'
Salt 1336'

Coconino 950'
Salt 1418'

Total Depth

1507

1572'

Spudded

5-7-64

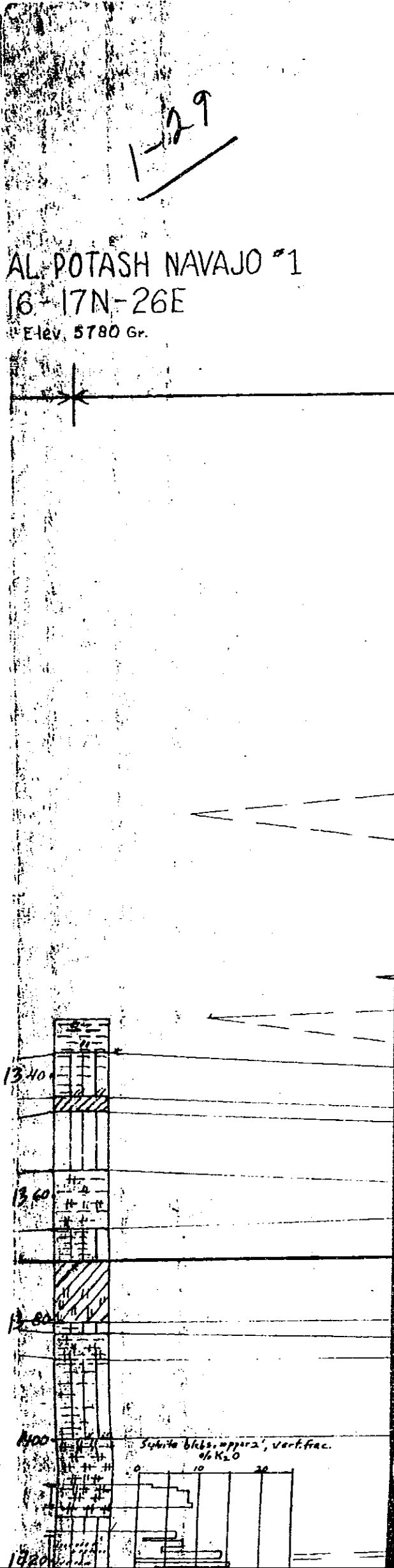
5-14-64

Plugged

5-12-64

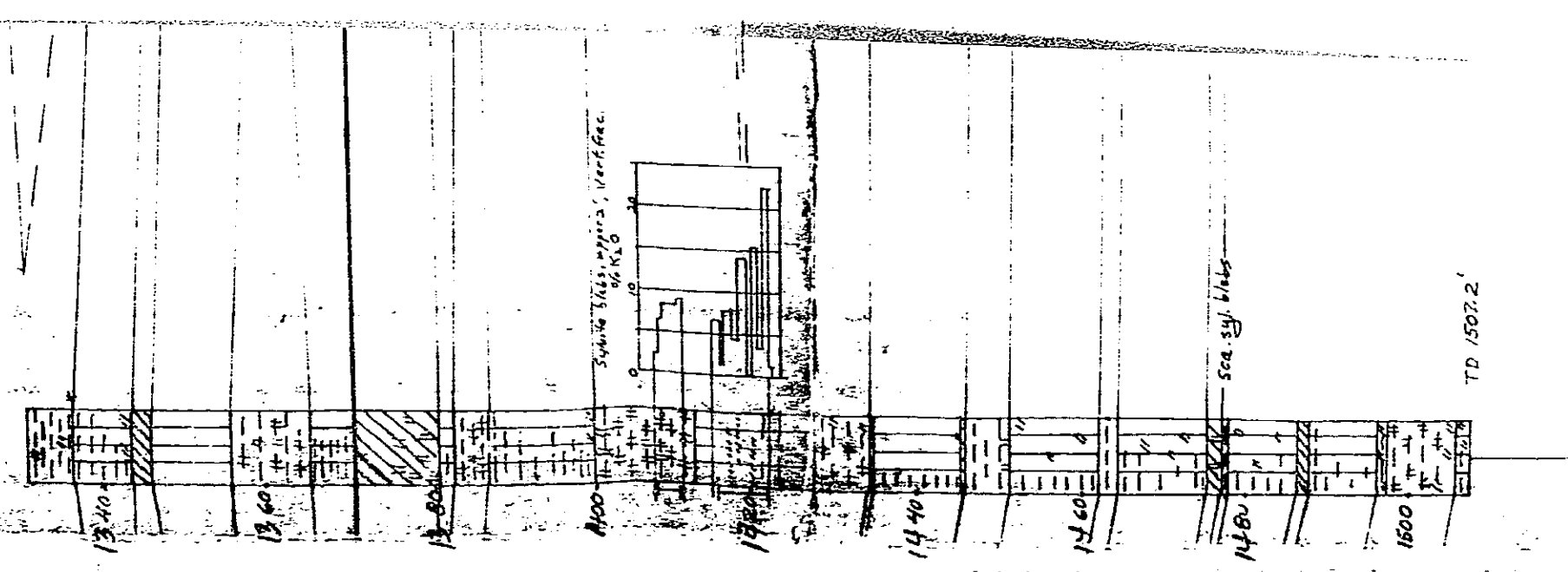
Casing

7" x 63'
4 1/2" at 1331'



Use reverse side
File this form in
CERTIFICATE


16-117N-N26E, Apache County

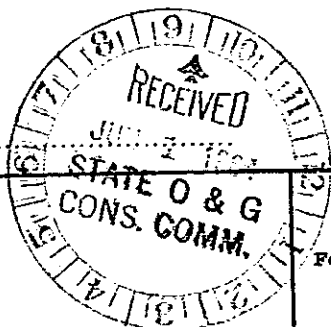


AL-POTASH NAVAJO #1
16-17N-26E
Elev. 5780 Gr.

1-29

WELL		National Potash Co. #1 Navajo		National Potash #2 Navajo	
Location		330 FSL, 330 FSL		330 FSL, 330 FSL	
Elevation		5780 Gr		5830 Gr	
Tops		5785 KB		5835 KB	
Cocoonino 960'		Salt 1336'		Cocoonino 950'	
Total Depth		1507		1572'	
Spudded		5-7-64		5-14-64	
Plugged		5-12-64			
Casing		7" at 63'			
		4 1/2 at 1331'			

PLUGGING RECORD							
Operator National Potash Co.				Address Carlsbad, New Mexico			
Name of Lease		Well No. 1	Field & Reservoir Black Mesa				
Location of Well 18 mi. S. of Navajo, Arizona		Sec-Twp-Rge or Block & Survey 16-17N-R26E			County Apache		
Application to drill this well was filed in name of Scott Bros.		Has this well ever produced oil or gas No		Character of well at completion (initial production): Oil (bbls/day) Gas (MCF/day) Dry?			
Date plugged: May 12, 1964		Total depth 1507		Amount well producing when plugged: Oil (bbls/day) Gas (MCF/day) Water (bbls./day)			
Name of each formation containing oil or gas. Indicate which formation open to well-bore at time of plugging		Fluid content of each formation		Depth interval of each formation		Size, kind & depth of plugs used. Indicate zones squeeze cemented, giving amount cement.	
Drilled for						1507-1331-15 sks. Cement	
potash only						1330- 960 25 sks. Cement	
						60- 0 ? sks. Cement	
CASING RECORD							
Size pipe	Put in well (ft.)	Pulled out (ft.)	Left in well (ft.)	Give depth and method of parting casing (shot, ripped etc)	Packers and shoes		
7"	63	63	0				
4 1/2"	1331	1331	0				
Was well filled with mud-laden fluid, according to regulations?				Indicate deepest formation containing fresh water.			
NAMES AND ADDRESSES OF ADJACENT LEASE OPERATORS OR OWNERS OF THE SURFACE							
Name		Address			Direction from this well:		
In addition to other information required on this form, if this well was plugged back for use as a fresh water well, give all pertinent details of plugging operations to base of fresh water sand, perforated interval to fresh water sand, name and address of surface owner, and attach letter from surface owner authorizing completion of this well as a water well and agreeing to assume full liability for any subsequent plugging which might be required.							
Use reverse side for additional detail File this form in duplicate with the State of Arizona Oil & Gas Conservation Commission							
CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the.....of the(company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.							
Date May 14, 1964		Signature 					
		STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION					
		Form No. P-15 Plugging Record File two copies					



NATIONAL NAVAJO NO. 1

DATA SHEET

Hole: National Navajo No. 1

Location: Sec. 16, T-17N., R-26E. - 330' N. and 330' W. of S.E.
corner Approx. 18 miles south of Navajo, Arizona.

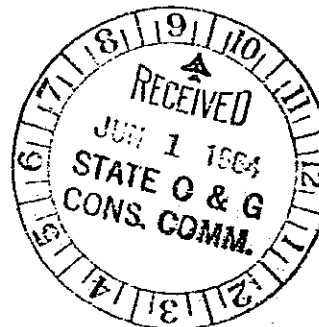
Elevation: Ground 5780'
KB 5785'

Dates: Spudded May 7, 1964
Completed Drilling May 11, Completed plugging May 12.

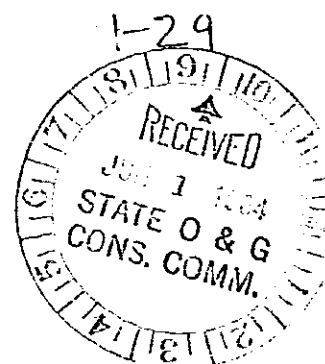
Contractors: Surveying - Lacy C. Greer Engineering Co. - Holbrook
Drilling - Scott Bros. Drilling Co. - Albuquerque, New Mex.
Core Logging - A. A. Gustafson - Port Sulphur, La.
Gamma Ray Logging - None

Drilling: Rig - Gardner Denver 2500
Rotary rock bit to 1331 - Dia. bit to 1507
Hole - 8 3/4" to 63' K.B. - 7" to 1331' K.B.
Casing - set 7" at 63' - 4 1/2" at 1331. Recovery 100%.
Core - Recovery 100% - Size 1 7/8" Cored with diesel
oil, and wire line with 10' barrel.

Abandonment: Hole plugged 1507 to 1331 with 15 sks. cement
1300 to 960 with 25 sks. cement
60 to 0 with cement



NATIONAL NAVAJO NO. 1



Top Coconino
960'

From	To	Ft.	
0	50		SAND - buff
50	60		SAND - and shale
60	160		SHALE - red and brown - few chert chunks
160	250		SHALE - red and brown and light gray - few chert chunks
250	350		SHALE - red and brown with buff sand layers
350	380		SAND - and brown shale
380	600		SHALE - brown and gray with chert particles
600	700		SHALE - red, brown, gray, cream - few white chert specks
700	800		SHALE - red, brown, gray, cream - few white chert specks
800	900		SHALE - red, brown, gray, cream - few white chert specks
900	960		SHALE - red, brown, gray, cream - few white chert specks
960	1000		SHALE - red, brown, gray, cream - small amounts of buff sand at 960. Lost circulation at 960
1000	1040		SANDSTONE - Samples mostly shale - 5% sandstone
1040	1060		No Samples - Regained complete circulation 1040
1060	1240		SANDSTONE - buff and red Samples mostly shale - 5% sandstone a few quartz pieces
1240	1300		SHALE - dark gray
1300	1328		SHALE - limey with some anhydrite and gypsum. Lost circulation. Casing set at 1328 in heavy mud. No cementing.

Core

Top SALT
1336'

From	To	Ft.	
1331	1336.2	5.2'	SHALE - brown with gray anhydrite stringers
1336.2	1343.7	7.5	HALITE - clear, med. grained - 50% brown shale at top decreasing to 5% at bottom - some gray anhyd. inclusions bottom 2'.
1343.7	1346	2.3	ANHYDRITE - light gray
1346	1351.8	5.8	HALITE - clear, med. grained - brown shale incl. 10% top to 5% bottom
1351.8	1355.8	4.0	HALITE - clear - med. grained
1355.8	1356.0	0.2	ANHYDRITE - with halite and br. shale
1356.0	1356.1	0.1	HALITE - with some red sylvite
1356.1	1365.0	8.9	SHALE - brown 5% cl. halite at top to 50% at bottom
1365	1370.5	5.5	HALITE - cl. med. grained 30% br. shale incl.
1370.5	1380.4	10.1	ANHYDRITE - gray bottom 5.5 ft. mottled with halite. Oil seeps into porous crystal faces and gives dark color.
1380.4	1382.3	1.9	HALITE - cl. med. grained. Few anhyd. and br. shale incl.
1382.3	1386.5	4.2	SHALE - br. halite 25% - 50 med. grained shale incl.

National Navajo No. 1 (cont.)

From To Ft.

1386.5 1399.1 12.6 HALITE - cl. med. to coarse grained. br. shale 40% top decreasing to 5% bottom. Few anhyd. incl. Anhydrite stringers bottom 3 inches.

1399.1 1407.9 8.8 SHALE - br. - halite 20%. Few red and white sylvite blebs top 2 ft. - from 1400 - 1402 - verticle salt break with syl. blebs

1407.9 1411.2 3.3 SHALE - br. - Numerous red sylvite blebs. Anhy. stringer

Sample No.	K ₂ O	Water Insol	Avg.
1. 0.4'	2.14	14.39	
2. 0.7	6.40	29.24	2.9'
3. 1.9	8.18	11.82	7.8 K ₂ O
4. 0.3	8.77	28.88	17.8 Insol.

1411.2 1412.9 1.7 SHALE - br. - Few red and white syl. blebs

1412.9 1415.7 2.8 HALITE - Cl. to orange. br. shale incl. at top scattered red syl. blebs

1415.7 1422.8 7.1 HALITE - Cl. anhydrite stringers. Numerous red and milky syl. blebs. br. shale incl. in bottom 3 ft.

Sample No.	K ₂ O	Water Insol	Avg.
5. 0.8	6.69	3.26	
6. 0.6	1.19	15.23	
7. 1.0	7.50	.54	
8. 0.9	4.19	.39	
9. 1.0	14.07	2.08	
10. 0.4	0.56	10.69	3.3'
11. 0.5	15.33	3.38	11.45 K ₂ O
12. 0.8	2.89	10.42	5.38 Insol.
13. 0.6	22.52	2.31	
14. 0.5	1.24	1.96	

1422.8 1427.8 5.0 HALITE - med. grained - orange - anhyd. incl. numerous br. shale incl. top 6" syl. blebs top 3 in.

1427.8 1434.4 6.6 SHALE - br. halite 20% Few anhyd. incl.

1434.4 1445.2 10.8 HALITE - Cl. med. grained - anhydrite stringer top and bottom - br. shale incl. 5%.

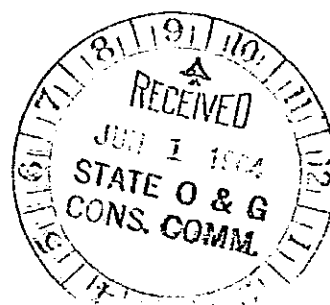
1445.2 1451.0 5.8 SHALE - br. - bottom foot br. and gray halite 20%

1451.0 1461.9 10.9 HALITE - cl. med. grained - 5% br. shale incl. Few anhyd. blebs.

1461.9 1464.3 2.4 SHALE - brown

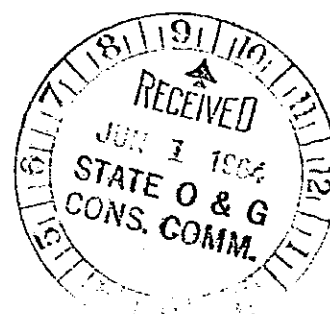
1464.3 1467.5 3.2 HALITE - brown shale incl.

1467.5 1475.2 7.7 HALITE - med. to coarse grained clear. Br. shale and anhyd. incl.



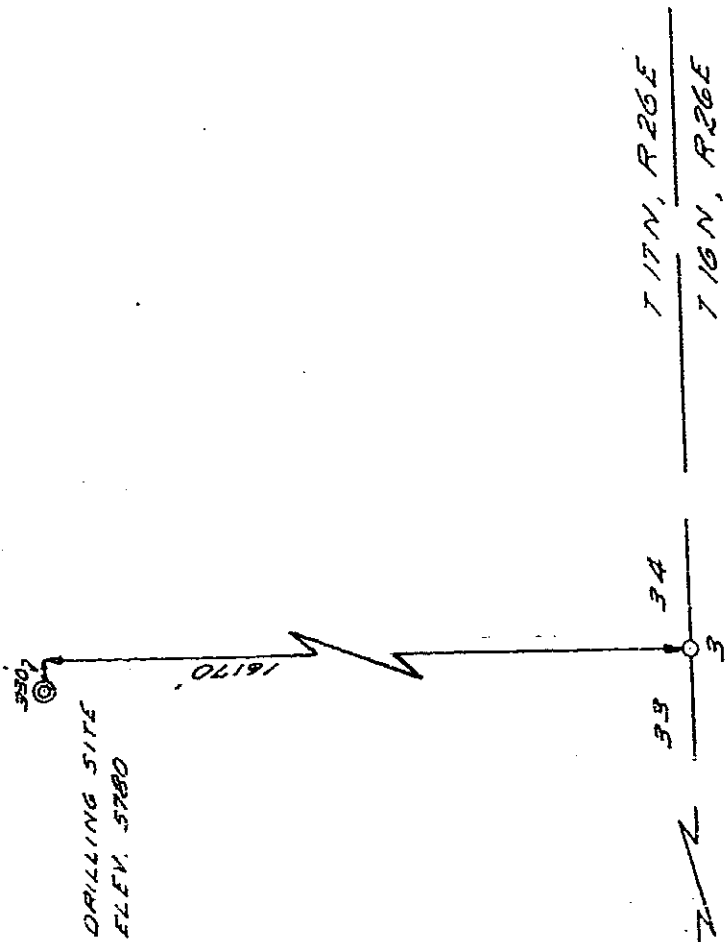
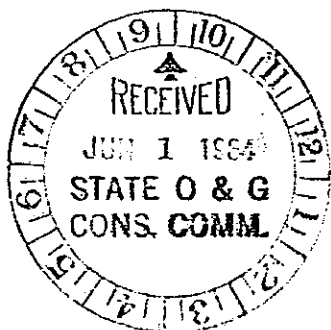
National Navajo No. 1 (cont.)

<u>From</u>	<u>To</u>	<u>Ft.</u>	
1475.2	1476.9	1.7	ANHYDRITE - gray - salt incl.
1476.9	1477.9	1.0	SHALE - br. scattered white sylv. blebs and halite
1477.9	1486.2	8.3	HALITE - cl. coarse grained br. shale incl. - anhydrite stringers
1486.2	1487.4	1.2	ANHYDRITE - gray - halite layers - bottom 4" massive anhyd.
1487.4	1497.0	9.6	HALITE - clear to orange - br. shale inc. - anhyd. blebs and stringers. Top foot 30% shale br. - Bottom foot gray anhyd. stringers and incl. numerous.
1497.0	1505.7	8.7	SHALE - br. Some gray shale and anhyd. Halite coarse grained.
1505.7	1507.2	1.5	HALITE - cl. med. grained - br. shale and gray anhyd. incl. Box 18 - Bottom of hole Finished May 11, 1964 Logged by A. A. Gustafson



SUMMARY

Top of salt 1336 ft. from rotary, 1331 from surface
 Top first KCl zone 1408 ft. - thickness 3.0 ft.
 Top second KCl zone 1416 - thickness 6 ft.
 Bottom of hole 1507.2 in halite



SEC. COR.
U.S.C.S. 1963
MONUMENT

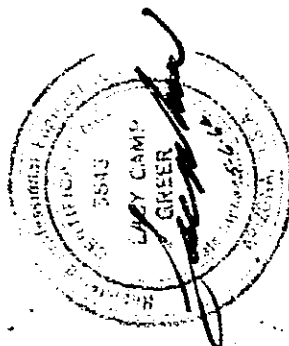
1/4 COR.
U.S.C.S. 1963
MONUMENT

SURVEYED	DATE
T.B.	5-64
LAYOUT	
DESIGN	
DRAWN	R.S. 5-64
CHECKED	
SCALE	1"=2000'
DRAWING NO.	283-473F

LACY C. GREER
ENGINEERING COMPANY
HOLBROOK — ARIZONA

DRILLING SITE LOCATION
SEC. 16, T. 17N, R. 26E
APACHE COUNTY, ARIZONA

PREPARED FOR
NATIONAL POTASH CO.
P.O. BOX 731
CARLSBAD, N.M.



September 22, 1965

Mr. Ben G. Messer
Duval Corporation
P.O. Box 38
Sahuarita, Arizona 85629

Dear Ben:

When you were in the other day we overlooked the information we had in our files on the two tests made by National Potash Company.

Thinking that you may have some interest in this information, we are enclosing a copy of everything filed with us.

As information comes in from other companies we will be pleased to forward copies to you.

Yours very truly,

John Hannister
Executive Secretary
mr
enc

September 8, 1965

National Potash Company
P.O. Box 731
Carlsbad, New Mexico 88220

Gentlemen:

Attached please find information recently furnished to us by Duval Corp., covering its drilling of some forty-four holes in search of potash in Apache County.

As you recall, during the summer of 1964 your company was engaged in potash exploration in this area. Inasmuch as these holes penetrated the Shinarump and Coconino formations, both formations being of potential helium value, I spoke to your personnel engaged in this activity, asking that certain information be filed with this Commission. They felt that this could be done.

This letter is to request you to file information along the line of the information furnished by Duval. Duval has further promised that in the near future they will file copies of logs down to the salt so that the information most valuable to this Commission may be made available to the public.

Your cooperation with this endeavor will be greatly appreciated.

Yours very truly,

John Bannister
Executive Secretary
wr
enc

NATIONAL POTASH COMPANY

P. O. BOX 731
CARLSBAD, NEW MEXICO

September 15, 1965

Mr. John Bannister
Executive Secretary
Oil & Gas Conservation Commission
Phoenix, Arizona

Dear Mr. Bannister:

Enclosed please find letter which will probably be of assistance to you in acquiring the necessary information you requested of National Potash Company in your recent letter.

The logs of the two holes we drilled did not include formation names. Both the geologists employed by National, at the time of drilling, are no longer with this company. Since I am unfamiliar with the formations, I hesitate to distinguish the Shinarump and Coconino Formations by interpretation of our information.

I suggest your Mr. Petty would be able to give you the requested information from data he possesses. If he hasn't sufficient data and you believe I could supply it, please do not hesitate to request it of me.

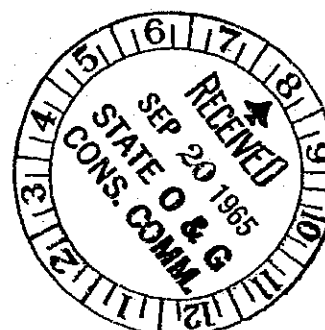
Sincerely,

National Potash Co.

Jack Bennett

Jack Bennett
Mine Engineer

JB:ds
Encl.



June 1, 1964

Mr. A. A. Gustafson
Box 24
Port Sulphur, Louisiana

Re: National Potash Company Navajo No. 1 and No. 2
Potash Tests

Dear Mr. Gustafson:

I certainly thank you very much for the information
furnished on the above captioned tests.

Attached find a copy of "Oil, Gas and Helium in Arizona"
and a set of our Rules and Regulations.

If you or any of your friends are interested in any
area in Arizona that we can help you with, please call
on us. We look forward to your visiting us some time
in the future.

Sincerely,

John E. Petty
Petroleum Geologist

JKP:mke
Encl.

NATIONAL POTASH COMPANY

P. O. BOX 731
CARLSBAD, NEW MEXICO

May 28, 1964

Mr. John K. Petty
Petroleum Geologist
Oil and Gas Conservation Commission
Phoenix, Arizona


Dear Mr. Petty:

I am enclosing a copy of the completion form and plugging form, a copy of the drilling company's cementing record, logs of the formation above the salt and logs of the formation that was cored including analysis on samples analyzed; a plat of the hole location for National Navajo No. 1 and 2.

I enjoyed meeting you very much in Navajo and hope to see you again sometime. This completes all the information that we have on these holes. Any further correspondence you may have in regard to these holes should be addressed to Mr. T. G. Ferguson, President, National Potash Co., Box 731, Carlsbad, New Mexico. In case you should want to contact me, I can be reached at Box 24, Port Sulphur, La.

Another batch of the surface samples for Hole No. 1, which I had shipped to Carlsbad, will be forwarded to your lab at Farmington.

Very truly yours,



A. A. Gustafson

AAG:dc

